Contrast and Color Improvement based Haze Removal of Underwater Image using Fusion Technique

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Abstract-*Image dehazing is one of the important process in this method. We propose simple and effective image and the dark channel to remove haze in single image. Haze is naturally and atmospheric effect. Underwater Image dehazing has become a challenging task for a variety of image processing and computer application.*

Key words: *Dehazing, denoising, fusion, contrast, scattered light*
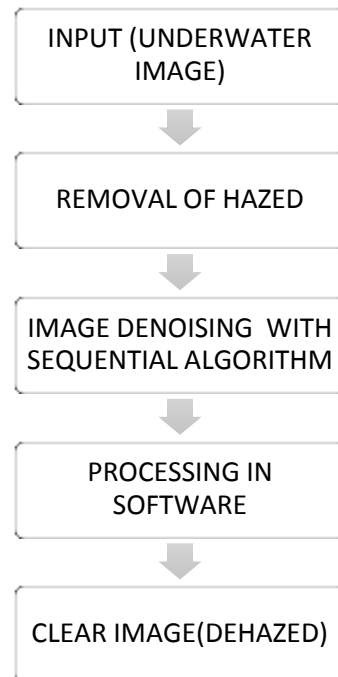
I INTRODUCTION

Underwater haze images has become an interesting field. underwater image are haze removal by highly desired in both consumed in computer vision application first haze removal can highly significant visible of water and correct the contrast of images ,underwater images will be more significantly effected. The most important feature is water shield algorithm in which it remove 90% of haze due to this process hence this several technique where develop to upgrade that attribute of an under water images haze is form due to atmospheric scattered effect single underwater images haze removed by this water shield filter. Original has been divide into sub images of histrogram of sub images haze is calculated. This will calculating atmospheric light and transmission for dehazing images similarly many method are used to enhance of haze images.

Haze is a phenomenon in which an image loses its fidelity and contrast due to scattering and absorption of light by mixed media, such as dust particles and water droplets in the atmosphere to over come the negative effect of haze level and persistence difficult to predict and address. A variety of approach have been used to dehaze an image such as histogram based dehazing. This approach is useful only for the non white image and cannot be utilized for image with bright colors, in the past several years, dehazing was gaining more attention in research as technology using digital imaging and computer vision is being used in more and more different areas. Dehazing has a special importance in application where the image are degraded significantly by the environment.

II PROPOSED METHOLOGY

In this proposed system dehazing and denoising has to perform together is called fusion technique using water shield filter

Fig.1 Block Diagram of System

INPUT (UNDERWATER IMAGE)

REMOVAL OF HAZED

IMAGE DENOISING WITH SEQUENTIAL ALGORITHM

PROCESSING IN SOFTWARE

CLEAR IMAGE(DEHAZED)

In this proposed system we can uses single image at same time. This will shown below in block diagram, underwater images suffer from attenuation of scattering light. In the method of proposed methodology, scene depth is estimated to be constant, and the remaining parameter are obtained by considering different conditions. This chapter consist of the linear equation used to obtain and identify parameters and utilized them in MATLAB to obtain dehazed images.

III DEHAZING

In this paper hazy image cause various problems for medical user, every where especially in hilly area where haze and fog are very common. A method for image dehazing using neutral network in prsposed system. Many of out door images have been used on which particular filter are applied to find haze in images. Haze images contain small value in only one color alpha channel from red, blue, green RGB channel. The important strength of this method is the ability to dehazed images even when scattered light can not be consider to be constant.

This method does not compute any depth information prior to restoration. Here produce two images prior is pixel based dark and bright channel. Hence the improvement has been given below in figure

fig.2 example of underwater with result dehazed image

Haze removal can divided into two categories, single and multiple image haze removal. In multiple image dehazing , two or more images of the same scene are analyzed by identifying the known variables and avoiding the unknown variables.

The method discussed below fall under this category. This method based on varying weather conditions. This approach can significantly improve visibility, but requires waiting for a changes in the properties of the medium therefore, this approach cannot be used for instant result. This method also based on polarization in which images same scene with different polarization filters are collected. The images are taken by applying different polarization filters to obtain different degree of polarization.

IV DENOISING

The process of eliminating noise exist in the image denoising. At first image denoising is performed with the use of watershed filter to compensate the effect of uneven lighting meanwhile the image feature are also enhanced removal of noise due to any image. This method use in

single input image and this method depend up on statistical assumption and essence of the scene.

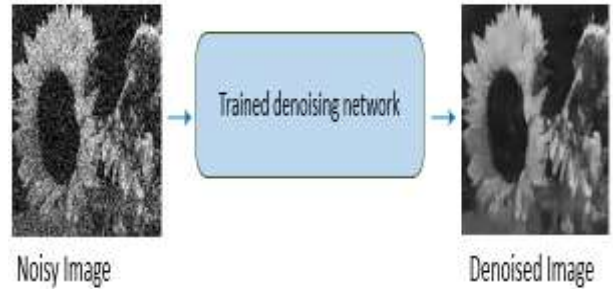You can use pretrained neutral network to identify and removeartifacts like noise from images.

Fig.3 denoising images

Image denoising is to remove noise from a noisy image, so as to restore the true images. However, since noise, edge ,and texture are high frequency components , it difficult to distinguish them in the process of denoising and the denoised images could inevitably lose some details. Overall, infact, image denoising is aclassic problem and has been studied. However, it remain a challenging. The main reason for this is that from a mathematical prespective, image denoising is an inverse problem and its solution is not unique .

CONCLUSION

Hazed removal algorithm used to extract images with free of haze of noise output perform by presenting image in future work is to address effect of noise and more effectively give a clear image by this specific application this paper is studied dehazing method used in the field of digital image processing.

REFERENCE

1. Narasimhan, srinivasa G. and shree k.Nayar,"chromatic frame work for vision in bad weather''. The processing of IEEE conference on computer vision and pattern recognition, vol. 1, pp 598-605, 2000.
2. Atul Gujural, shailender Gupta and Bharat Bhushan ''A Novel defogging technique for dehazing images'' International Journel of Hybrid Information Technology Vol .7 no 4(2014),pp.235-248
3. R.Tan, ''visibility in bad weather from a single image '', proceeding of IEEE Conference on computer vision and pattern recognition, vol .1,(2008)June, pp.1-8.

4. A. Levin, D .lischinski and Y.Wesis,'' A closed from solution to natural image matting'',proceeding of IEEE conference on computer vision and recognition, vol. 1,(2006).pp. 61-68.

5. R. Fattal, "single image dehazing'', ACM transaction on Graphics, vol. 27, no 3, (2008)august, pp. 1-9.

6. K. He, J. sun and X. Tang,'' single image haze removal using dark channel prior'',IEEE Int. conf.on computer vision and pattern recognition,(2009),pp. 1956-1963.

7. C. Tomasi and R. Manduchi,''Bilateral filtering for gray and color images'', proceeding of sixth IEEE international conference on computer vision,(1998),pp. 839-846.

8. Y. Wang and B. Wu, ''improved single image dehazing using dark channel prior'', proc.IEEE conf. Intelligent computing and Intelligent system (ICIS),vol 2,(2010),pp. 789-792.

9. Y. Xiong and H.Yan,' 'Improved a single dehazing using dark channel prior'',journel of computational information systems, vol 9,(2013),pp. 5743-5750.

10. Tripathi, and s. mukhopodhayay, '' single image fogg removal using anisotropic diffusion.'', image processing,vol. 6,no. 7,pp.966-975,2012.

11. Y-H Shiau, P-Y .Chen, H-Y Yang , C-H Chen, S-S.Wang,''Weighted haze removal method with halo prevention'', Elesvier,2013.

12. Fattal, Raanan.''single image dehazing .'' in ACM transaction on graphics(TOG),vol 27,no. 3,p.72.2008.

13. J.Y.Chaing and N.Karpel''Recovery of underwater visibility and structure by polarization analyisis ,'' IEEE transactions on image processing,1756-1769,April-12.

14. Kocak D M, Caimi F M. The current art of underwater imaging-with a glimpse of the post and vision of the future. Marine technology society journel , 2005, vol .39,no .3,pp .5-26.

15. Raimonda s, silvia c.2010,''understate images processing '': state of the art of resortion and image enhancement method '. Eurasipjournel on advance in signal processing.